WHAT IS CLAIMED IS:

1. A semiconductor device comprising:

a semiconductor substrate;

a first insulating film formed on an upper side of said semiconductor substrate, said first insulating film containing ladder-shaped siloxane hydride;

and

a second insulating film disposed adjacent to said first insulating film, said second insulating film containing oxygen as a constituent element.

2. The semiconductor device according to claim 1, wherein said second insulating film further contains silicon as a constituent element.

3. The semiconductor device according to claim 1, wherein said second insulating film comprises a compound selected from the group consisting of $SiO_2$, SiOC, SiON and SiOF.

4. The semiconductor device according to claim 1, further comprising a metal interconnect embedded in a multilayer structure, said multilayer structure comprising said first insulating film and said second insulating film.

5. The semiconductor device according to claim 1, wherein said semiconductor device is free of a guard ring.

6. The semiconductor device according to claim 1, wherein said ladder-shaped siloxane hydride is L-Ox™.

7. The semiconductor device according to claim 1, wherein said ladder-shaped siloxane hydride is a film being formed

by being baked at a temperature within a range of from 200 degree C to 400 degree C.

8. The semiconductor device according to claim 1, wherein said ladder-shaped siloxane hydride has a film density within a range of from 1.50 g/cm$^3$ to1.58 g/cm$^3$.

9. The semiconductor device according to claim 1, wherein said ladder-shaped siloxane hydride has a refraction index at a wavelength of 633 nm withina range of from 1.38 to 1.40.

10. A method for manufacturing a semiconductor device, comprising:

forming a first insulating film containing ladder-shaped siloxane hydride on a semiconductor substrate; and

forming a second insulating film adjacent to said first insulating film via a plasma CVD utilizing a source gas containing oxygen.

11. The method according to claim 10, wherein said source gas contains a gas selected from a group consisting of $O_2$, $N_2O$, NO, CO, $CO_2$, $H_2O$, tetraethoxysilane (TEOS) and dimethylsilane.

12. The method according to claim 10, wherein said source gas further comprises a silicon compound.

13. The method according to claim 12, wherein said silicon compound is selected from a group consisting of $SiH_4$ (monosilane), monomethylsilane, dimethylsilane, trimethylsilane, tetramethylsilane, tetraethoxysilane (TEOS) dimethyldimethoxysilane and tetravinylsilane.

14. The method according to claim 10, wherein said second insulating film comprises a compound selected from the group consisting of $SiO_2$, SiOC, SiON and SiOF.

15. The method according to claim 10, further comprising:

after forming said second insulating film, selectively removing a multilayer films to form an interconnect groove, said multilayer films comprising said second insulating film and said first insulating film; and

filling said interconnect groove with a metal to form a metal interconnect.

16. The method according to claim 15, wherein said ladder-shaped siloxane hydride is formed by being baked at a temperature within a range of from 200 degree C to 400 degree C during said forming said first insulating film.